

DIGESTION AND DIET

RATIONALLY DISCUSSED

BY

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CONTENTS

	PAGE
PREFACE	
INTRODUCTION	1
MEAT (RED)	8
MEAT (WHITE)	16
FISH	26
MILK, EGGS, AND VEGETABLE ALBUMEN	40
FARINACEOUS FOODS	58
VEGETABLES	68
FRUIT	81
DRINKS (NON-ALCOHOLIC)	93
DRINKS (ALCOHOLIC)	107
CONCLUSION	119

PREFACE.

THIS is not a medicinal work in any sense, but purely a treatise on dietetics. It extends over the whole range of food and drink ; and I trust the practical manner in which it is written will make it valuable to such of the profession and community as wish to enlighten themselves upon the subject of "What shall we eat and drink?" The series of articles will be of great service when read in conjunction with the author's work on "Indigestion clearly explained, treated and dieted, with special remarks on Gout, Constipation and Obesity."

The work consists of some Introductory and Concluding observations containing in full the author's views on the subject of diet, &c. ; the articles are devoted to the

consideration of meat (red and white), fish, milk, eggs and vegetable albumen, farinaceous food, vegetables, fruit, drinks (non-alcoholic and alcoholic).

I have to acknowledge my indebtedness to Sir Henry Thompson, Sir William Roberts, Dr. Lauder Brunton, Professor Dujardin-Beaumetz and others, whose various works and articles on diet have been of very great assistance to me, and which have only to be read to be appreciated by all.

When such men as those above named have deemed it worth their while to devote a portion of their valuable time and intelligence to the discussion of diet and dietary, it needs, I am sure, no particular words from me to emphasize the importance of the subject. As I have said in the introduction, there is no need to deal with the subject of food in an ascetic spirit, nor need we debar ourselves from giving scope to a refined taste and letting it have a certain amount of innocent pleasure. Nor again need we abstain from those pleasures which are attributed to the functions of the palate, and

principally derived from a close and earnest study of the table.

I have in conclusion to tender my sincere thanks to my friend, Mr. R. Oakes King, for carefully going through the proofs for me.

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RATIONALLY DISCUSSED.

INTRODUCTION.

IN dealing with the subjects of "*Digestion and Diet*" I propose to keep to the following order:—Article 1, meat (red); article 2, meat (white); article 3, milk, eggs, vegetables, albumen, &c.; article 4, fish; article 5, farinaceous foods; article 6, vegetables; article 7, fruits; and article 8, drinks—non-alcoholic and alcoholic; going through them in due order and describing the different merits of each food in the class treated upon.

Very few things in my opinion show the advances made in civilization so much as the thought, care and time devoted to dietary

and cooking. The art has nearly reached the level of a science, thanks to the intellectual men and women who have taken up the subject and written upon it. I am quite sure in my own mind that in our treatment of disease we should depend as much on diet and cooking as on the use of drugs, for a man or women who takes a sufficient amount of properly cooked and suitable food at regular intervals, as well as a regular allowance of drink, and keeps the muscles and skin healthy by judicious exercise and bathing, will find that nutrition and assimilation will go on without the least trouble or discomfort, and the pangs of indigestion be unknown. Such wise people need not fear disease and will hardly know they have a heart, liver, or any other organ from which pain and trouble may be, and with mankind generally are, so frequently experienced. Gout and obesity, the two great bugbears of middle age, will never cause them a moment's anxiety.

I know very well there are a great number of people who would like to follow out this

excellent prescription, but unfortunately the many absorbing cares connected in the present day with businesses, professions, and in fact everything which has to do with getting the *needful* to live on, put many hindrances, some almost insurmountable, in the way of living regularly and scientifically. Then, again, the dictates of fashion often have a much stronger influence over us than the due consideration of our healths. Taking therefore everything into consideration, we must confess that in the great majority of cases the fault lies in ourselves, and benign Nature is not to be blamed in any way.

It is not very hard to discover from their youthful and general healthy appearance the men and women who live regularly and carefully. The complexion is good and clear, the hair glossy and in abundance, the gait elastic, the body erect, and we may even add this further very excellent virtue, viz., the temper is even and good, combined with a feeling of charity to all mankind; so that, in short, we have the grand union of a sound body and equally sound mind. I need not

describe the opposite beings, those who suffer from gluttony, gout, indigestion, and liver. Like the poor they are always with us, and can generally be found reigning supreme in those large London boarding-houses which have of late years risen up like mushrooms everywhere.

We certainly need not deal with the subject of food in an ascetic spirit, nor need we debar ourselves from giving scope to a refined taste and letting it have a certain amount of innocent pleasure; nor again need we altogether abstain from those pleasures which we attribute to the functions of the palate and principally derived from a close attention to the table, and the viands thereon. The only thing we have to avoid is the becoming a gourmand by the encouragement of our sense of pleasure to such an extent that we take far more than is sufficient for the sustenance of the body.

We should therefore regard food from the following standpoints:—(a.) Its value as material to be used for building up and sustaining the human body. (b.) The most

suitable food. (c.) The best way to prepare it, and the most palatable way of mixing it, and lastly, (d.) before deciding on the kind and quantity of our food we should consider, amongst other things, where we live and what our present conditions of life are. Practical experience always speaks more plainly than words. I will ask the reader, especially if of travelled experience, to picture the vast difference in the amount of food required in a frigid zone to a torrid one and the variations in the taste for foods in different temperatures. Yet there are many—perhaps for the most part it is the result of faith without knowledge—who eat the same quantity of meat, fat, &c., in the tropics as when on the Southern Ocean.

Another good illustration of my meaning may be found in the dinner prepared for and enjoyed with such gusto by the Melton Mowbray foxhunter, and the dinner of the same individual when languidly going through a London season.

In conclusion, I may say that a clear outline of the physiology of digestion should

be known by everyone and specially by every mother, and those who possess that knowledge will be able to read the following articles with interest, and I hope with pleasure. Why should the world for so many generations have been carefully instructed in the *dietetics of the soul*, whereas the *dietetics of the body* have, until the present generation, been completely ignored by our instructors? I will not say a word against the care, trouble, time, and expense which our forefathers thought was necessary to expend over the former "dietetics"; but I must add as a practical dietitian that, in my opinion, the total good obtained would have been far greater had the latter had the same care lavished on it. This unfortunate neglect of a most important and interesting subject has made men often boast of their ignorance of so small a subject, regard it as unworthy of the exercise of their thought, and look upon it as only a fit occupation for their wives and sisters; and the wives and sisters, until a few years ago, if means were ample, also looked upon it as so trivial and menial a

INTRODUCTION.

subject that it was not worth their while to consider it. As typical of this general ignorance of the fairer sex on the subject of diet, I may instance the case of a near relation of mine who having been left in charge of the housekeeping, once asked me if a *leveret* was a fish, bird, or animal, as she could not make out what the cook was talking about.

1.—MEAT (RED).

It is first necessary to decide whether meat should be a part of our diet or not; we know there are many who say it should not. I do not wish to enter into any controversy on the point, but will merely say that I would not have written this article if I did not myself think that meat is essential for those who live in cold climates. I ground my belief on the facts that the teeth of man point to his being suited for a mixed diet, viz., animal and vegetable, and that he does much better on it. Physiologists have proved that nitrogen, in the form of albumen, is what builds up the tissues and muscles, and replaces the parts which are continually removed daily by the natural wear and tear of the body. We find this material more abundant in meat than in any other food. True, we have it in vegetables of the legume or pulse tribe, but not in the same concentrated form as in meat. There are about

311½ grains of nitrogen in 1½ pounds of lean beef, whereas we should have to eat nearly 3 pounds of oatmeal to get the same amount.

We may decide therefore that meat is necessary, and divide it into "red" and "white." The former includes beef, mutton, lamb, venison, and also pork and veal (although white in appearance): the latter includes poultry, game, &c., about which I shall have something to say in another article. Beef, mutton, &c., are called red meat, because they are red in appearance, due to the blood contained in the flesh. If they are tabulated according to their digestive properties we should place them in the following order, viz. :—

1. Venison roasted,	2 hours	.....	to digest.
2. Lamb	"	2	" 30 minutes "
3. Mutton	"	3	" 15 " "
4. Beef	"	3	" 30 " "
5. Veal	"	4	" 30 " "
6. Pork	"	5	" 15 " "

It will be at once seen that there is a great difference between the digestibility of venison and lamb, compared with veal and pork, but the reader must carefully note that

the above table is based on the assumption that the different meats are of the same quality, kept a suitable time, and cooked in the same manner. Meat off a tough old leg of mutton, badly roasted, might take even longer time to digest, than the meat from a carefully roasted piece of dairy-fed pork.

The way animals are fed has much to do with the quality of the flesh, particularly in the case of pork. Even in beef and mutton, there is a great difference: compare the quality, as regards nutrition and digestibility, of sound Aberdeen beef with other kinds of beef, and of Southdown and Welsh mutton with the mutton sold by most butchers.

It is also well to consider the nutritious property of each kind of meat and to remember that a healthy man requires 300 grains of nitrogen a day. The proportion of this useful element in the various kinds of red meat is as follows:—

Beef, lean,	1½ lbs.	=	311·85	grains of nitrogen.
Mutton	„ 1½ „	=	296·10	„ „ „
Veal	„ 1½ „	=	311·15	„ „ „
Pork	„ 2½ „	=	302·80	„ „ „

from this it will be seen that beef stands at

the head of the list and is very superior to pork.

A good careful housewife should be a good judge of meat, and as it is compulsory for the officers in the army so to be, it should not be considered *infra dig.* for anyone to confess, that they are not ashamed to go to their butcher's and select the meat which has so much to do with the building up of their own and their children's bodies. The following hints may be of advantage in the selection of good meat.

SOUND MEAT.

Flesh.—Should be of a bright clear-looking, cherry-red colour, and of a firm or slightly elastic consistency (cut portions of any meat long exposed become black and dried up).

Fat.—The exterior of the flesh should be covered with bright, healthy-looking fat, the kidneys, heart, &c., well covered. It may vary in colour from white to straw colour and yellow (whiter in young bulls and animals fed on grass than in bullocks and

cows). It should be firm, of a suety taste and smell, greasy to the touch, and readily combustible.

DISEASED MEAT.

Signs of disease.—(a) Dark colour of flesh, which is flabby and wet, with a want of firmness; or (b) pallid looking, dry and harsh. The fat is of dead colour, without a suety smell or taste, and the skin does not peel off with a crisp sound.

FROZEN MEAT.

In frozen meat the fat is of a deadly white colour, the flesh has a uniform pink appearance owing to diffusion of the colouring matter of the blood. The whole has the appearance of having been soaked in water; if it has been kept some time it may be recognised by a general dull, parboiled, *dirty* appearance.

SALT AND SMOKED MEAT.

The most common kinds eaten are salt beef, pork, tongue, bacon and ham, all of which take longer to digest than fresh meat,

and may be put down at between four and six hours; but still they are not to be ignored on this account, for people who possess sound teeth, and give themselves plenty of time to eat such food, may find it not difficult of digestion, for the salt in it acts as a stimulant to the saliva and gastric juice, and in that way the hardness of the fibre is overcome. I would not recommend them to be eaten daily, but as a change they do very well. People often remark that they eat bacon or ham for breakfast, and they never feel any inconvenience from it. That doubtless is the proper time to eat such meats, for tea or coffee mix well with salted or smoked meats, and there is generally a longer interval between breakfast and any other meal.

I will conclude this article with a reference to the cooking of meat which requires knowledge, time, and patience. Many other essentials, owing to the kind of fire and the utensils of the various forms of cooking used, have to be duly considered.

Meat in this country is either prepared by grilling, roasting, boiling, frying, or stewing. The first method is by far the best for nourishment and digestion, but the other methods all turn out a very palatable food, when done by a practical cook.

The amount of meat we should eat daily depends upon the amount of wear and tear the body undergoes, the season of the year, and the quantity of other kinds of food taken with it, but for all practical purposes, we may put the amount at between eight and fourteen ounces a day for a healthy man or woman. Large amounts, however, can be consumed in very cold climates without bad effect. Sir George Simpson saw a Zakuti in Siberia eat thirty-six pounds of beef at one meal, and Sir John Ross puts down the average quantity of flesh and oil consumed by the Esquimaux at twenty pounds a day. Fat meat seems to keep out the cold better than anything. Sir John Franklin in his history of travels states, that no quantity of clothing could keep the body warm while it fasted. Men who have a

sufficient quantity of meat can do more physical work than those who live on soup and vegetables—this was proved by two Englishmen doing the work of three Frenchmen on a contract railway in France; but when the Frenchmen were given the same quantity of meat as the Englishmen, they did the same amount of work as the Englishmen, man for man.

2.—MEAT (WHITE).

I stated in Article 1 that it is the latitude in which we live which has so much to do with the proper diet we should adopt. *Dame Nature* has taught us a very useful lesson in this respect ; indeed it would be much better for us if we obeyed her dictates more closely, and ate in the various latitudes food similar to that eaten by the natives of such latitudes, who, having no instructor but *Dame Nature* to follow, with that instinct which seems as deeply implanted in them as in the brute creation, eat only such things as are best calculated to do them good. Near the equator, where the heat is intense, and man does not do much physical exercise, we find the staple food is rice, which, with a little fish, butter, or oil, is eaten by the natives of a greater part of China, India, South America, and also in the West Indies. The date, abundant in Arabia and North Africa, forms the staple portion of the food of the people of those countries. Coming

farther away from that imaginary line, which novices in seafaring life are told to look for (and often do), we come into Europe, where in some countries white meat is added to the dietary, in addition to legumes, fruit, &c., and of which form of dietary the Italian mode of living may be taken as an illustration. In Spain we find the people eating smoked meat in the form of bacon and ham as well. We journey farther going more north, and see the peasant of France eating 'pot-a-feu,' a mixed dish in which red meat is contained. Butter, cheese, vegetables, and fruit are also eaten, but we find that a great amount of physical work is not *the order of the day*, although, of course, there are exceptions to all the examples given. Next we cross into Germany, where we come on the Saxon and Dane, who live by the *sweat of their brows*, and are ever wearing away the muscular tissue, which is renewed by their consuming red meat (chiefly pork), potatoes, wheaten and rye bread, all of which contain ample material for such renewal. Getting nearer the Arctic region, we note that among the Russians

a large increase of red meat is eaten, with fat and oil; rye and oaten bread taking the place of wheaten bread, and few vegetables or fruit are partaken of. Lastly, near that region, where to generate heat abundantly is the chief object of every individual, there is an entire absence of vegetables and fruit in the dietary, which consists of red meat, fatty and malty materials, and black bread.

We fortunately do not live in either of the extremes of latitudes, but our *tight little island* has so many eccentricities in the way of climate, that it is far more difficult for a dietitian to lay down a rule for people living in this country than for those living in a more even climate. I may say, speaking generally, that we adopt the dietary for a latitude colder than that we live in, and eat far too much red meat, when, as a matter of health, we should eat white meat instead. This custom has so grown among Englishmen, that wherever they locate themselves they carry their dietary with them. In my travels about the world nothing has struck me so much as this. You see the Englishman in India eating meat

as if at home ; and on Christmas Day, in Australia, when the thermometer is registering 92° in the shade the "*Roast Beef of Old England*" and plum pudding are put on the table, when a dinner of a little soup, white meat and fruit would be far more suitable.

We include among white meat—

- (a) Poultry,
- (b) Game,
- (c) Hares and rabbits,
- (d) Wild fowl,
- (e) Pigeons and other small birds ;

the flesh of which is more or less white by reason of the little blood contained in it ; the flesh of the hare and game being the greatest exception, for it is nearly red, or brownish-red. Unfortunately for people living in large towns, the scarcity and expense of white meat prevents the greater portion of the inhabitants from making it a part of their daily dietary. This is really a misfortune, for it is of far more use to the people who live in town, and whose occupation is sedentary and intellectual, than to country people whose employment is mostly in the open air ; these latter

should have the red meat, and town folk the white meat. Apart from the question of being able to afford it or not, our country cousins are in a far better position than we townsfolk, as they can poach upon Nature's preserves; and yet, notwithstanding all their advantages, they by no means make sufficient use of this excellent food.

As regards nourishment, it does not take such a high position as red meat, for we find that we should have to eat nearly two pounds and a half of white meat to get the requisite amount of nitrogen, viz., 300 grs., but as to digestibility, the verdict is greatly in favour of white meat, as the following table will show:—

Turkey, domestic, boiled	2 hours 15 min. to digest.		
Rabbit, wild, boiled	2	30	„ „
Turkey, domestic, roasted	2	35	„ „
Goose „ roasted	2	35	„ „
Chicken „ fricasseed	2	45	„ „
Chicken „ roasted	3	0	„ „
Rabbit, wild roasted	3	0	„ „
Fowls, domestic, roasted	4	0	„ „
Ducks „ roasted	4	0	„ „
Ducks, wild roasted	4	30	„ „

The great advantage of white meat as a

food is, that the waste material is not so harmful to the constitution as that derived from red meat, and it is much easier to get rid of. Another advantage of white meat is its variety; and there is yet another point in its favour, viz., the scope it affords the cook of exhibiting her culinary art to perfection. As I have said, we have a great choice in white meat, and as the different seasons come round, the kinds to select from are many and varied; for example, in :—

January, February	...	Game, Rabbits, Wild Fowls, Turkeys and Fowls.
March and April	...	Rabbits, Pigeons, Snipe, Turkeys and Chickens.
May and June	...	Leverets, Chickens, Wood Pigeons.
July	...	...
August	...	...
September	...	...
October, November, and December	{	Poultry (all), Game, Wild Fowl, Hares, Rabbits, Pigeons, and Small Birds.

From the above list the most fastidious can surely find something to suit his taste and digestion.

The cooking adopted in this country for white meat is roasting and boiling; but we can also bake, jug, grill, curry, or braise it, with advantage to the meat and our tastes. I am of the opinion that there is no better way of cooking white meat than by the *gridiron*, over a clear, slow fire, for by this process the juices of the meat are kept in, and we thus derive all the benefit of the flavour and juices. Braising is also a very pleasing and tasty form of cooking all such white meat as fowl, turkey, or rabbit. It is a great mistake to suppose that delicate additions tending to heighten the natural flavour are required. White meat of course should be presented at table in the highest state of perfection attainable, so far as breeding, feeding, and keeping can accomplish it, but each particular kind should have its own proper flavour, which should on no account be masked or disguised by other flavours of an artificial nature. In France the cook does this because the meat is insipid, immature, lean, or wanting in sapid character. A fowl in that country comes to

the table in so many disguises, that we can well appreciate the witty saying of Brillat Savarin, that "Poultry is for cookery what canvas is to the painter."

On the whole, then, we may look upon white meat as one of the most wholesome and valuable of foods, and we must regret exceedingly that the supply of this food is not cheaper. If it was not for that useful little animal the rabbit, the poor would hardly know the taste of white meat. The flesh of the rabbit is very nutritious, easy of digestion, and very toothsome when properly cooked. Alas! alas! what an insipid meal the poor make of it by their barbarous practice of boiling it to rags and covering it with parsley sauce. Compare the taste of the same meat when slightly boiled, then put into a *braise pot*, served up nicely brown, and with balls of savoury stuffing and rich gravy; or made into a delicious curry.

I think I have said sufficient about white meat—to show what a very important place it occupies in dietetics, and I believe it should largely take the place of red meat with all

those who suffer from indigestion or dyspepsia, also with the brain worker, and all who lead a sedentary life.

Before leaving the subject of meat, I should like to say a few words on the subject of soup. Jules Gouffé says: "The broth of beef is the foundation of domestic cookery. It constitutes the most essential and really nourishing part of our daily food; that is, good meat. It is, moreover, the basis of a large number of culinary preparations, such as sauces, purées, &c. When scientifically made these consist of the juices of the meat. We divide them into clear and thick, and can make them from all kinds of white and red meat, and when blended with vegetable purées (the variety of which is endless) they admit of a daily change to a remarkable extent, and afford scope for taste in the selection and combination of flavours. We all know the value of soups in illness; they are often the very mainstay of our treatment, and I think they should be more frequently included in our diet. I often order weak young girls, when they say they cannot take

exercise on account of coming over so tired, to partake of 6 oz. of clear soup before starting (or better still, after half the walk has been accomplished), with happiest of results.

The French peasant certainly has the knack of wasting nothing, but of making an excellent soup out of pieces that our poor throw away. The *pot-au-feu*, which we all know is the French national soup, is a composite dish of beef broth, vegetables, and beef; in it nothing is wasted, and although the meat may be tough and old, when it is served in this manner it is an appetising, nutritious, and cheap food, and not at all like the wretched *Irish stew* served up by our own peasants. While on the subject of soup it will not be amiss, I think, for me to refer to a soup well known to all, viz., *pea-soup*, which is well worth the consideration of my readers, as being one of the cheapest, and when made really well, the most palatable and sustaining of soups.

3.—FISH.

Fish is a food of the very highest importance. It cannot be compared to any other food, being singular to itself, and differing from other foods in this highly agreeable manner that it is provided by Nature, and the only cost it involves is the labour expended in catching and transporting it. It is reared and fed in Nature's vast preserves, which, as we know, are found in the mighty oceans, and vast rivers and lakes on the Globe's surface; and so extensive are these preserves that there is sufficient material stored up in them to feed fish more than enough to supply food for the whole of the inhabitants of the world. It has always struck me that we do not fully appreciate the colossal aspect of this source of food, nor are we sufficiently thankful for it. One has only to be on the still blue waters of the Mediterranean Sea on a fine day to realise the enormous stores of food which the sea con-

tains. Imagine placing a small thing, so small in fact that it is only capable of measurement by division of inches, into a river, and in a few years taking the same thing out in the form of a beautiful salmon, weighing, perhaps, half-an-hundred weight ; food it may be noted, of the finest character, and which has not cost a single fraction in labour or nutriment to keep during its growth. This, perhaps, some of my readers will argue is not quite true, for they may remark that the writer has forgotten the wages of keepers, &c., to look after the river in which the fish is matured. I can refer them to similar examples of fish caught in the open sea, which is a fishing ground free to all.

We must all agree that while Great Britain possesses perhaps the best opportunities in the world for securing a large and cheap supply of fish, she fails to obtain it; and until a few years ago, the poor and the clerical class hardly knew the taste of fish, except, perhaps, in the winter, when mackerel and fresh herrings glutted the market. Think of a housewife, who has not had any oppor-

tunity of visiting the shores of our coast, living in a new suburb of London, visiting a local fish shop and seeing on the slab a cod-fish, a turbot, half a salmon, a few soles and whiting, and some boxes of dried fish, she must indeed think to herself that fishes are rare in the extreme, and when she asks the fishmonger the price of a pair of small soles, and is told 2s. 6d., her heart must wax cold within her at the idea of making fish a dietary for her children; and it would not be altogether preposterous on her part to suppose the fish were fed on grains of gold, from their scarcity and price. Again the poor housewife, living in some midland county, far away from the azure deep, must really believe that all sea-fish are *gold fish*, not from the brilliant colour of their scales but from the cost of them. Surely to every thoughtful mind the question presents itself, 'Should this state of things be?' I would venture to reply, 'Certainly not!' With our network of railways all over the country, and the facilities afforded by them, fish should be an abundant and cheap food, and the price should not vary much in any

part of England. I am afraid, however, nothing will be done until the monopoly of the trade is broken up, and Co-operative Societies take the place of the Billingsgate ring. I am quite aware that the supply and price have changed greatly during the last few years, London having profited most by the change; but still there is vast room for improvement.

The present century, wonderful in all respects, may fairly claim, as one of its greatest results, the tenfold increase of that class which we may designate *true brain workers*; and it would seem that the tendency of the age is to dispense with bodily work as much as possible and throw the corresponding labour on to the brain, with the result that mental activity is greatly increased and stimulated. Now, to a sedentary man, woman or child, no matter what his or her calling in life is—if such calling permits only a little muscular exercise (which, as I have already told you, is so essential to health)—fish furnishes a most suitable food. It contains a moderate amount of flesh-forming

material, entails little labour on the digestive organs, and when we aid it by a little fat, vegetables and fruit, it becomes a most perfect entire food, most nutritious, and satisfies every want of the body.

It is perhaps hardly necessary, when I consider the intelligence of the modern day reader, for me to advert to the popular fallacy that a fish diet contains *phosphorus* in a special manner, to renovate the waste of the brain, and so support mental work. There is no foundation for such an ignorant belief. The value of fish as a food to the sedentary (like white meat), lies alone in the fact that it takes less time to digest, and does not require that physical exertion to bring about complete consumption as red meat does, and without which complete consumption, whatever the diet may be—whether fish, white or red meat—we have, as I need scarcely point out, an unhealthy condition of the body produced, and the materials of gout, obesity, and rheumatism stored up.

I do not want to be misunderstood in this article, nor wish the readers to suppose that

I think it would be better to do away with meat altogether and substitute fish for it. I only want to impress upon them that I consider there is a great deal too much red meat eaten by people in this country, and in especial by the well-to-do who lead sedentary lives. Of course my remarks are not intended to apply to those who are growing, and who daily take a large amount of physical exercise. The person to whom I would more particularly desire to address myself, is the dyspeptic, who, perhaps, was born with a weak digestion, or has become a martyr to indigestion by reason of some fever, or in consequence of his own indiscretions. In such cases the stomach absolutely cannot digest meat, and fish, vegetables, and fruit should form the dietary. These people will often be able to live a long and a tolerably comfortable life, if they only keep to the above diet; but should they not conform to it, and add red or even white meat, pangs of indigestion are sure to follow, and their lives will be a burden to them. I was once asked by a patient what my own diet consisted of. My

answer was, "I am sometimes carnivorous, sometimes a semi-vegetarian, occasionally a vegetarian, as well as a fruitarian." I explain this somewhat complicated reply as follows:—"If in the country, indulging in sport, riding and climbing, I partake of meat three times a day; when at my professional duties, meat once a day, fish and eggs for other meals; when abroad in a torrid zone, fish, vegetables, and fruit; and if the heat is so intense that it is impossible to take any exercise, little else but vegetables and fruit, and about which last form of diet I shall have much to say in another article. "*Humanum est errare*"—and we are all but human—a pleasant little dinner party may lead us astray, no matter what zone we may chance to be in; but as long as and we do not indulge too frequently in that which is forbidden, it does not so greatly matter. But with people who know they cannot digest meat yet always take it, I must own I have little sympathy. I am afraid I have rather strayed away from my subject, but I trust the few extraneous remarks will not be without use in showing the utility of fish in dietetics.

We may divide fish into:—

- (a.) Sea-water.
- (b.) Fresh-water.
- (c.) Shell-fish.
- (d.) Turtle, &c.

SEA-WATER FISH.—The names of the sea-water fish are legion; some are scattered generally in every sea, others are found in certain districts. The ones we are most familiar with are soles, turbot, cod, mullet, mackerel, whiting, herrings, haddock, eels, plaice, whitebait, &c., &c. I think out of this group if we were to take a ballot of most *likes*, the sole would come out easily first at the head of the poll. It certainly is a pleasant palatable dish (when served properly cooked), most digestible and nutritious, and can be oftener repeated without becoming monotonous, than almost any other kind. We have, however, a large selection, and any fish will make a palatable dish when nicely cooked.

FRESH-WATER FISH include trout, jack, perch, roach, eels, carp, &c., &c., but concerning the taste of these there is a considerable

diversity of opinion, and while some people enjoy them very much, others say they are not worth eating. I consider the difference lies in the cooking ; at all events there is one species, viz., the trout, upon which most people are agreed. Taken fresh from a stream and carefully cooked (as you obtain it in some of the Welsh hotels), it is a perfect luxury.

SHELL FISH as a class contain some of the most nutritious of fish food. I need only mention the oyster, which we so often rely upon in cases of exhaustion through fever, &c. This eaten raw with vinegar, pepper to taste, with brown bread and butter, forms an excellent sustaining lunch for the brain worker. Other shell fish, such as lobsters and crabs are serviceable, but some people cannot partake of them as after eating of them they are afflicted with *nettle rash*. All of us know the high opinion the turtle is held in, on account of the soup produced from it. It is, however, a *rara avis*, and we only seem to eat it in order to tickle our palate ; for where turtle soup is, there generally also is every other luxury.

I think a few remarks on that king of the fishes, the salmon, will not be altogether out of place. This is a sea and fresh-water fish; a part of its time being spent in the former and part in the latter. It is on the border line between fish and meat, and contains a large amount of nourishment, and although it is the most indigestible of fish foods, it is much easier of digestion than meat. Most people like salmon as it is easily cooked. *The price is moderate considering its worth; and, lastly, it is a fish that seems to take the place of meat better than any other.

The amount of nitrogen in some fish is very large and compares favourably with meat, as the following comparisons will show: Taking beef (neither fat nor lean) as having a nutritive value of 100; veal is 92·5; mutton, 86·6; venison, 88·8; poultry, 93·9; salmon, 107·9; herring, 100·4; eels, 95·6; mackerel, 90·9; turbot, 84·4; trout,

* In Scotland and some parts of England where salmon is very plentiful, servants used to make a contract that they should not be fed on it more than three times a week.

84.2 (Professor Atwater). We must, however, take into consideration that a large proportion of a fish is not edible, and the above is only the nutritive value of the edible portion; for example, the percentage of edible solids in the salmon is about 33.0, in the herring only 11.52. One of the most striking facts in connection with the nutritive value of fish is that the cheapest kinds of fish, viz., mackerel, eels, and herrings, are far higher in the percentages than the dearer kinds, with the exception of salmon. It is also interesting to note how soon fish is digested, as the following table will clearly show:—

	H.	M.	
Trout, salmon, fresh, boiled, or fried ...	1	30	to digest.
Codfish, fresh, boiled	2	0	„
Plaice, fresh, fried	3	30	„
Oyster, fresh, stewed	3	30	„
Salmon, salted, fried	3	45	„

The most indigestible among the fish tribe are shell fish, particularly lobsters and crabs. We pass on now to the cooking of fish. Here is a field for the cook to display her culinary art, for I am not afraid of contra-

diction, when I say that it lies with the cook whether the taste is satisfied or not. The frying pan is a most useful utensil for cooking fish in, and should be large and deep (people use far too shallow pans).* The fire should be a strong one, for the fat (fresh olive oil or well clarified beef dripping being the best for this purpose) must be raised to a temperature of 500 degrees Fahr., so that the moment the fish comes into contact with the boiling fat, a thin film of every part of the surface of the fish is coagulated; by this the juices are at once locked up within, and with them the quality of the flavour. Baking fish is another capital way of making a palatable dish and securing all the juices which lie within the fish. The method described by Sir Henry Thompson in his work on "Food and Feeding" I don't think

* Since this work has been in the press I have been carefully studying cooking by electricity, so well illustrated at the Electric Exhibition at the Crystal Palace; but my opinions concerning its value are not sufficiently matured to give them in the present edition.

can be improved upon; it is simple and can be managed by every housewife, with the result that a most nutritious, digestible and palatable food is set before her family or friends. I give it in Sir Henry Thompson's own words, "It consists of placing the fish, after the usual cleaning, entire, if of moderate size, say from a sole to a small turbot or dory, in a tin or plated copper dish adapted to the form and size of the fish, but a little deeper than the thickness of it, so as to retain all the juices, which by exposure to the heat will flow out. First, however, the surface of the fish is to be lightly smeared with butter, and a morsel or two added round it; the dish is then to be placed in a Dutch or American oven, in front of a clear fire. The advantages of this method are, that the fish is cooked entirely in its own juices, which are abundant and form the best sauce, and that these juices which contain part of the nutriment and much of the characteristic flavour, are saved and utilised; lastly, the direct action of the fire browning the surface of the fish gives

that appetising flavour, which is the special charm of *roast* and the *grill*, and which is known to appreciative palates as *tasting of the fire*. We can easily cut the fish into pieces and so fit it to our pan, and when cooked garnish it as we please; such fish as red mullet and mackerel are especially good when cooked in this manner." I would advise, by way of conclusion to this article, every reader to give it a trial, and I feel sure he will agree with me as to its merits.

4.—MILK, EGGS, AND VEGETABLE ALBUMEN.

These are entire or complete foods; that is to say, they fulfil the whole of the requirements of the body, and repair the wear and tear which is daily going on, without necessitating recourse to any other food. We have only to watch the calf grow and the chicken being hatched to prove the correctness of this statement, or, as a further illustration, to see how beautifully a child is nourished when entirely fed from the breast of a healthy mother.

Milk, &c., contain all the elements, as I have said, essential to the support of the body and to the activity of its functions. The chief elements are carbon and nitrogen, which are contained in proper proportions. If we put these elements down as solid and take milk for our example, we find it contains :—

- (a.) Fat or cream.
- (b.) Casein.
- (c.) Milk, sugar of.
- (d.) Various salts.
- (e.) Water (about one-seventh part of the whole weight).

Fortunately the quality of milk can be easily ascertained, for we have only to buy a Lactometer for 2s. 6d. and obtain a tall glass and float it in the milk at about a temperature of 60° Fahr. If we find the specific gravity persistently below 1028, we had better change our dairyman, for it shows that the milk is either very poor or the dairyman thinks it is *too strong* for the poor children; in the same manner as the publican has a paternal interest in his customers and often thinks his spirits are *too strong* for them and dilutes them accordingly, forgetting always, however, that his customers can look to that themselves. A good rich milk should have a specific gravity of 1030 to 1032.

The importance of milk as a food should be of great interest to every one, for, with the exception of wheaten bread, milk is probably more universally employed as food than any other. Nearly every man, woman, and child,

consume milk in some form or other, at least once daily, while as already stated, with the youngest part of the community, during the most critical stage of early growth, milk forms the chief and the best source of nourishment. It should be remembered in connection with these striking facts, that milk is a complex animal mixture, and one which so rapidly decomposes, that in hot weather a few hours suffice to make it a very dangerous food and alter it materially. Considering the high importance of the subject to both rich and poor alike, one would think that it would be impossible for the authorities to ignore the subject, and far too risky for any vendor to send out an impure article. I wish the reader to clearly understand that there are doubtless plenty of dairies in London which supply a pure milk ; but there are a number of small shops which principally supply the poor, the owners of which do not supply such a pure milk, perhaps, not entirely through their own fault, for they buy the milk from some small farmer and are quite ignorant of its source. I think I cannot do better

than quote from my pamphlet on "Milk and Consumption," to show the dangers we and our children encounter in drinking milk.

"I have visited many dairy farms in England for the purpose of inquiring if the extraordinary number of consumptive patients, without any taint in their family history, could be due to milk. I will give you a description of an average farm dairy:—A dirty yard in front of some sheds, in which every living germ can germinate and flourish galore, with no drainage. You cross the yard with a feeling of sickness and enter the shed, which is quite unventilated, and the drainage of which is practically like that of the yard, viz., *nil*, where you find, say six cows, none too healthy, and perhaps one out of the number with evident signs of tuberculosis (cows are very liable to consumption). The dairy-maid—an old woman, certainly not a pattern of cleanliness, her nails looking as if they had not been touched since they first grew, and very often the woman is suffering from chronic eczema. The water the cows drink, and with which the cans are washed out,

is a solution of sewage. The milk is all mixed together and despatched into some large town to be the sole food of poor invalids and children. It does not require a very fertile brain to realise the consequences of drinking this fluid daily. The poor child, starved and reared in an ill-ventilated room, and born with a constitution the soil of which is ready for any *bacilli* to cultivate upon, soon falls a prey to consumption and dies. The poor city clerk supporting a family on £150 a year, and whose health is shattered with the cares and troubles of this world, drinks a glass of this milk daily to support his strength, and soon falls a prey to typhoid fever. No article is so susceptible to contagion as milk. Dust, dirt, foul gases, and germs of different diseases are soon absorbed by it and flourish. I have examined sample after sample of milk, and found that the majority contained pus cells, pieces of skin, germs, and other things only revealed by the microscope. My idea of a dairy farm (and I do not think there is anything extravagant in it) is that it should contain fine, healthy cows, carefully selected

and fed on good pasture land, with a few 'roots' in the winter. The shed in which they are kept should be well ventilated and properly drained, and above all the water they drink should be pure and uncontaminated. The cows should never be milked in their stable but in a separate shed, and the milk-maid be after the style of '*Where are you going to, my pretty maid?*' so well known to admirers of mural pictorial advertisements. Cans and other utensils used, to be properly scalded out with pure boiling water. Lastly, after the milk is put into the can, the can should be sealed and not opened until it reaches the dairyman. If the demand was great and customers determined to have such dairies, they would soon spring up (I do not doubt that some already exist), but so long as the public is apathetic and take no trouble over the matter the old style of dairy will flourish and disease be scattered. Rich and poor suffer alike, the only difference being that the latter cannot afford to suffer."

* Since my pamphlet was written on "Milk and Consumption," the Public Health Act

(London), 1891, has come into force, and the following sections I trust will remedy some of the evils complained of. These sections I quote in full for the benefit of the reader who may not have read the Act, which will, I trust, be strictly put into force by the authorities :—

Sec. 28 (1). The Local Government Board may make such general or special orders as they think fit for the following purposes, or any of them, that is to say :—

- (b.) For the inspection of cattle in dairies, and for prescribing and regulating the lighting, ventilation, cleansing, drainage, and water supply of dairies, in the occupation of persons carrying on the trade of dairymen.
- (c.) For securing the cleanliness of milk vessels used for containing milk for sale by such persons.
- (d.) For prescribing precautions to be taken for protecting milk against infection or contamination.

Sec. 71 gives the Medical Officer of Health

the power of going with a properly qualified veterinary authority, inspecting the animals in any dairy, and if the Medical Officer of Health is of opinion that an infectious disease has its origin in the milk sent out from the dairy, the sanitary authority may bring about a suspension of the supply of the suspected milk.

As milk is one of the most potent factors in the spread of certain diseases, as scarlatina, diphtheria, and typhoid fever, I think this inspection is very necessary.

Sec. 71 (4) Provides—If any person refuses to permit the Medical Officer of Health, on the production of a justice's order under this section, to inspect any dairy, or if so accompanied, as aforesaid, to inspect the animals kept there, or after any such order has been made, supplies any milk within the district in contravention of the order, or sells it for consumption therein, he shall, on the information of the sanitary authority, be liable to a fine not exceeding five pounds, and, if the offence continues, to a further fine not exceeding forty shillings for every day during which the offence continues.

This is very good, and reads well, in fact we might believe the matter settled, but I cannot help remembering the elaborate by-laws made by the Board of Trade for the benefit of seamen. If the reader should have read "Sea Sickness—Voyaging for Health," he will find that "poor Jack" is not much better off now than before these regulations were made. The saying of O'Connell that "A coach and four can be driven through an Act of Parliament," is, I think, quite as true now as when first uttered by the Liberator.

People who are not certain as to the source of the milk they use had better boil it. By this process they will be able to destroy all the living germs it may contain. In these days, when fashion and weak constitutions have, in the higher classes, prevented the young mother performing her duties to her offspring, the importance of cow's milk as a substitute has given great weight to the subject. Many infants cannot digest cow's milk on account of the large quantity of casein it contains; this is shown by the fact that it is

often returned curdled. When this is the case, it should be diluted with one part of lime-water, a little sugar of milk added, and raised to a temperature of 95° Fahr. Asses' milk contains about the same quantity of casein as women's, and agrees better with most children. In goat's milk there is nearly the same amount of casein as in cow's. The cause of indigestion is generally overfeeding; for the child seldom has the bottle out of its mouth, and the consequence is the stomach never has any rest and often rebels. About every four hours is quite often enough to feed a child. Milk is also an excellent food for some adults who take a large amount of active exercise. It however rarely suits people who lead a sedentary life, or those who have reached middle age. I do not recommend it as a drink at meal times, for it is a food of itself, and is therefore likely to upset the other nutritive materials supplied by the constituents of a meal. A suitable form of drink can be obtained when the cream and casein have been removed; this is known as *whey*. The Russians ferment

mares' milk and call it *Koumiss*; it makes a light effervescing drink suitable for invalids or people with any gastric complaint.

Before passing away from the subject of milk, I should like first to deal briefly with one particular form in a manufactured state, viz., *cheese*. This is made from casein of milk, and is a food of the highest value, eaten in some form by nearly every nation, and to the majority of people always palatable. Unfortunately, it is decidedly indigestible; it takes fully four hours to digest, even when the gastric juice is in a normal condition. Its nutritive value is very great, for in 10 oz. of skim cheese we get 301·88 grs. of nitrogen and 1217·10 grs. of carbon; or taking beef as having a nutritive value of 100, cheese (from skimmed milk) would be 159·0. This high nutritive value is of the utmost importance to our rural labourer, who makes it his chief food.

If we consult the cook as to the value of milk, we find it would be hard for her to dispense with it; for give her plenty of milk and a few eggs she can produce the most

wonderful nutritious dishes known as "sweets." Custards and creams form the basis of most of them, and we eat and enjoy them, perhaps not thinking that the chief constituent is milk. There is one dish which combines the very highest nutritive properties and is easier to digest than nearly any known food; this is tripe boiled in milk. You can eat a tripe supper and go to bed an hour afterwards knowing that your supper has had time to digest. Lastly, we know our friends, the vegetarians, consume a large quantity of milk, but I hope to refer to their particular form of diet later on, in a future article on vegetables.

The food next in importance to the community at large is, I think without doubt, eggs, which birds of all kinds furnish us with. They are universally eaten all over the world. An egg, like milk, is an entire or complete food, and contains all the elements to support the body. The white part is the best example of animal albumen. Unfortunately, like milk, it is very difficult to get the correct article. Eggs which have

laid in a dairy for a week are called *new laid*. Pay what you will, you are never certain of your article, and the only sure way is to keep fowls yourself, which, in a town, is rather a trouble. Even then you may be done, for a lady once told me she kept six hens on purpose that her children might have new laid eggs, but found her object frustrated by the servants replacing the new laid ones by French eggs, bought for kitchen use. Sometime since a case was reported in the *Daily Telegraph*, from which it appeared that Russian eggs were sold as fresh French eggs, after having been detained for three months in Hamburg. Provided the egg is new laid it is a most valuable food. It contains entire 303·80 grs. of nitrogen, and 2545·20 grs. of carbon in 2 lbs., or taking the nutritive value of medium beef at 100, that of a hen's egg would be 72·2. The digestibility of eggs varies according to the particular form in which they are eaten. The following table shows the respective times of digestibility of eggs and milk in an uncooked or cooked state:—

	H.	M.	
Eggs, whipped raw, ...	1	30	to digest
Milk, boiled	2	0	"
Milk, raw	2	15	"
Eggs, boiled	3	0	"
Eggs, hard boiled or fried	3	30	"

People often put an egg into a hot cup of tea, which is a great waste, for the albumen of the egg combines with the tannin of the tea and forms a dense *insoluble precipitate of tanno-albumen*,* absolutely indigestible, and chemically of the composition of leather. It may, however, improve the tea by separating the tannin from it. One use the egg has, but which I regret to say, is not much in vogue in this country, is as part of *the omelet*,* which culinary art produces; a form of food, which is at the same time, light, sustaining, and delicious to the taste. We have both savoury and sweet omelets, but to describe the manipulation necessary to produce either would be superfluous in an article like this, and besides the reader will find all

* Among the numerous omelets prepared I can strongly recommend fish, vegetable, meat, cheese, crab, apple, sweet and omelet souffl  e.

requisite information in the many cookery books published at the present day, and pre-eminent amongst which is that most excellent and practical work on cookery by Mrs. A. B. Marshall. Such dishes could well take the place of heavy meats so often placed on the lunch table.

With some people eggs do not agree; for when fried they seem to cause biliousness² and constipation, but even in these cases it is often ~~the fat~~ the eggs are fried in which is the cause. With the majority of us eggs agree very well, and people can often partake of the yolk of a new laid egg when they cannot partake of any other food. They are of great service to the invalid, the dyspeptic, and growing child, and when we only consider, as I have already mentioned, what the scientific cook can produce with milk, eggs, and a little white flour, we should indeed be thankful to the birds, which yield us food bringing so many comforts in its wake.

VEGETABLE ALBUMEN, from which source of nourishment the true vegetarian derives the vital element nitrogen, is found

in most abundance in the legumes such as beans, lentils, and peas, associated with a large supply of starchy matter but little fat. The question whether these legumes could take the place of meat, or part of its place, is, I consider, a most interesting point. The subject, however, is surrounded with so many scientific and technical arguments that it would occupy far too much room to discuss it in this work. I would only remark that in a country so largely populated as ours, the amount of space saved, if the poor lived chiefly on legumes would be enormous; for the land required to feed cattle sufficient, we will say, for the food of 1,000 men, would if planted with legumes, be capable of supplying sufficient food for 10,000 men. The fine white Soisson haricot bean is the richest in point of nourishment, and is much more easily digested than any form of meat, and consuming weight for weight, most eaters would feel lighter after the meal, and the cost, as compared with that of meat, would be very greatly in favour of the former. These beans are easily cooked, and to do so

properly the reader should first soak them for a day in cold water; then place a quart in two quarts of water with a little salt; boil, and then allow them to simmer until they become soft. Eat with butter, salt and pepper to taste, or fry after boiling for a few minutes in beef dripping and some sliced onions, or a few slices of bacon. This latter dish, though so inexpensive and nutritious, is really a comparatively luxurious dish, and fit for the taste and palate of people in any condition of life. Haricots, when stewed until quite soft and made into a thick purée with small additions, make a capital garnish for braised poultry, cutlets, &c., and lastly in the form of a vegetable, and fried brown they form a capital garnish to a roast shoulder of mutton, &c.

Peas, although inferior to haricots in nutritious properties, are, when made into soups, a most valuable food. My late friend, Captain Paul Wolff (who went through the Franco-Prussian War), told me how well the German Army, even during the bitter winter of 1870-71, did on a food called "Erbswurst."

—(I write from memory). This is an ordinary pea-soup, with a proportion of bacon fat added to it, and then solidified. It is easily portable, goes into a very small compass, is very inexpensive, and can be either eaten cold or converted into a good soup by the addition of some boiling water.

Purées, when added to meat juices in the form of veal, beef, poultry, or game stock, form excellent soups, containing every element necessary to strengthen the body. I often pity our poor farm labourers in the winter, sitting under a wayside hedge eating bread and cheese and drinking perhaps a cold and sour beer, when I think how better it would be for them and how much more enjoyment they would get out of their mid-day meal if it consisted of a pint of hot soup, the ingredients of which they could easily carry with them and warm over a wood fire in a few minutes.

I will bring this article to a conclusion, by drawing attention to the fact that legumes are the richest products of the vegetable kingdom, and the cost of them should not be more than 3d. a lb.

5.—FARINACEOUS FOODS.

Foods under this class are very numerous. and they are grown and eaten by civilised and savage nations alike, and are the opposite to the foods I have been writing upon in the² previous articles, for they we saw were rich in nitrogen, whilst farinaceous foods, on the other hand, are rich in carbon. The most familiar to us are wheat (in the form of bread), rice, potatoes, maize and arrowroot. Bread has been called the "*staff of life*" from remote ages, and even to-day it forms the bulk of the food of the working classes. Considering it is the food that has chiefly to support the nation, it would be only natural to suppose that the law would prevent adulteration and insure that bread was made of a certain standard quality all over the kingdom. Unfortunately the law takes very little notice of the trade (except concerning the weight), and the consequence is bread is most fearfully

adulterated, flour made from maize, peas, rye, oats or potatoes being substituted for fine wheat meal. I am told also, that if one was to only pay a visit to some of the bakeries in London, the conditions under which bread is made would prevent a taste for it ever afterwards. Bakers, I am sorry to say, frequently suffer from eczema owing to the irritating particles in the flour, and, as bread-making is their living, it is difficult to suggest a remedy, except that they should bestow greater care on their hands. The poor suffer from these adulterations and dirty bakeries far more than the rich, for the West End baker dares not send to his customers the same stuff, as sold in the East End; this seems very hard, for the rich have so many luxuries, that the quality of the bread would not, perhaps, matter much so long as it was tasty and, by all means, made with cleanliness. I consider it quite a misfortune that the poor have entirely discontinued making their own bread, for they could make a much more sustaining, tasty, and nutritious article than that bought, which is often puffed out

by alum, potash, and tartaric acid, and produces flatulence and indigestion. Bread of fine wheat flour, made into dough with milk and water and a little salt and baking powder added, and baked without delay in a quick oven, is by far the best food to obtain our carbon from, and it is easy of digestion, particularly if the moisture is driven out by toasting. We, I think, stick too much to what we call bread, whereas the dough with slight additions can be made into all kinds of teacakes, &c.

The next important farinaceous food is the potato, very rich in starch, and used as a vegetable in most countries. I think the Irish may be given the first place as potato eaters, but we can easily understand that they cannot exist upon them alone, and have to have recourse to bacon, herrings, or some oily fish. The potato is placed on the table in an endless variety of ways—baked, boiled, steamed, fried, or served up as *pommes de sautées au beurre*; all of which ways, if done well, make this useful tuber a very nourishing food. I must confess that I consider the

Irish way of boiling them in their *jackets* is certainly the best mode of cooking to help the digestion to dispose of them, for the following chemical fact: "The reason is that "a higher degree of heat is applied to the "starch cells of the potatoes, which are "ruptured by such heat and converted into "dextrin, and this helps the saliva greatly "in the conversion of the starch into sugar." (*"Indigestion clearly explained, treated, and dieted"*).

Potatoes do not agree with every one, from the fact that the saliva is sometimes too weak to convert the starch into sugar, and if this is not done in the mouth it does not take place until after it has passed out of the stomach, the consequence is, people experience a *heavy load* after eating them, but with the poor, who do not have too many luxuries and whose digestion is healthy, potatoes properly baked or boiled digest in two hours and a half.

Sir William Roberts speaking of potatoes says, "People do, no doubt, sometimes unduly stuff their stomachs with potatoes,

"which the organ finds difficult to deal with.
"But many persons cannot enjoy, or scarcely
"eat, their dinner without potatoes, and to
"abstain from them is a great privation.
"Nor is this necessary; a reduced allowance
"solves the dilemma perfectly."

Rice should take a much higher place among farinaceous foods than it does; we in this country do not include it in our dietary very much. As I have stated, in some countries it forms the bulk of the food of the inhabitants: give a Hindoo plenty of rice and he is quite satisfied. We certainly should not ignore so cheap, nutritious, and digestible a food, and we might do much good in advising the poor concerning its high nutritive value and the way to cook it. We all in England know the "*rice pudding*" with milk, eggs and sugar added, but how few housewives can boil rice properly, and use it as a vegetable to garnish curries, grilled poultry, &c., or make it a welcome addition to many kinds of soup. There really is no art in boiling rice, for it is only to add six ounces of clean rice to sixteen

ounces of water, and boil for ten minutes over not too hot a fire ; then throw it into a colander that it may thoroughly drain.

Other farinaceous foods are arrowroot, sago, vermicelli, and other substances derived from the roots of tropical plants.

I must not forget to allude to a substance, which is a manufactured food, if one can apply such a term to a food simply made from the gluten of wheat with a little water ; I mean *macaroni*. Most of us are aware that the gluten of wheat is most nutritious. Compared with beef, weight for weight, it is not very much inferior to the latter in flesh-forming qualities, and is much more easily digested and assimilated than meat, particularly by those who have very little time to spare over their meals. But in order to effect this the macaroni must be properly cooked, and not served up as it generally is in this country, a hard, slimy *mess*, with too much cheese and butter, or very much over-baked. The proper way to cook it is simple enough. Take half a pound of macaroni, and, boil in three pints of water over a

slow fire for twenty minutes, adding a little salt and pepper. Dry the pan, strain the macaroni and put it again into the pan, and add half a pint of milk or stock, and let it simmer until the fluid is absorbed, then add one ounce of grated cheese (Parmesan, Cheddar, or Gorgonzola), and stir well over the fire. After the cheese is dissolved, add about two ounces of fresh butter, stir it until melted. Less or more cheese may be added according to taste. There are many other excellent dishes which can be made with macaroni. I am sure the tired hard-worked labourer would enjoy much better a steaming dish of well-cooked macaroni and cheese, than some cold fat pork and bread for his supper.

During the last few years there have been an enormous number of patent farinaceous foods introduced into the market. They owe most of their nourishment to the gluten they contain; some are valuable and carefully prepared, while others are simple rubbish and only support their sale by flaring advertisements. One of the thorns of a conscien-

tion's physician's life is this ever-increasing number of patent foods; for his recommendation, particularly if he devotes most of his time to dietetics, at once gives a stamp to its value as a nutritious food. There is a food named Coralline, which I have recently carefully analysed. It consists of highly nutritive materials, both nitrogen and carbon, in a readily assimilable form. It is an elegant preparation, and very different to the many starchy foods in the market, which have a great tendency to cause constipation and flatulence. Coralline does not, and can be given to invalids and children with advantage. At the same time it makes a capital light meal for the brain worker, and all who lead a sedentary life. It is ready cooked.

Arrowroot, sago, &c., are all useful as foods, and can, with the addition of eggs, milk, and sugar, be formed into some very useful dishes, and are particularly useful for growing children.

It has of late years been the fashion for physicians to order their patients to give up farinaceous foods when they complain of

indigestion or think they are getting too fat. This is a mistake, and, in addition, is contrary to scientific facts. It is of the utmost importance to carefully and thoroughly understand the physiological difference between Amylaceous* foods and the allied group of Oleaginous* foods (different forms of fats—olein, margarin, &c.—all containing abundance of oil)—the former not very digestible; some make adipose tissue, whereas the latter do if the individual either does not consume it by physical exercise or cannot assimilate it. It is unwise therefore for people when they want to reduce themselves in weight to abstain entirely from farinaceous food and take an increased quantity of meat, for the required reduction can very easily be obtained while still partaking of a small quantity of farinaceous food. Fashion to-day

* Fats are burned off as *carbonic acid* and *water*, producing heat, some way deposited. Amylaceous foods are burned off in the same way, but if deposited take the form of fats. But later on they will share the usual fate of ingested fats, *i.e.*, be burned off should there be a deficiency of heat-forming material.

seems to dictate that people should not have any superfluous flesh on their bones, but sedentary life runs counter to fashion. If it is well to relieve ourselves of the extra weight, let us do it in a simple and agreeable manner. Some very useful remarks on obesity are given in "Indigestion clearly explained, treated, and dieted; with special remarks on Gout, Constipation, and Obesity, &c."

The reader who has the interests of the poor at heart (I hope everyone has) will do well to let him read this work, and point out to him the importance of good bread, potatoes and macaroni as foods, and how easily they can be made tasty with a little extra care bestowed on them.

6.—VEGETABLES.

The term “vegetables” is rather ambiguous unless we put the prefix “green” before it, and even then it does not convey the whole of our meaning, for besides the well-known green vegetables such as cabbage, broccoli, spinach, sprouts, lettuce, turnip-tops, &c., we include in the term many roots, such as turnips, carrots; some subterranean stems, as the potato (already described under farinaceous foods), onions, &c.; some fruit and flowers, as peas, beans, cauliflower, &c.; some cryptogamic plants, as the mushroom; and succulent underground stems which include celery and rhubarb, all of which we eat hot with meat, or cold as a salad, or make an entremêt of them.

The value of nearly all green vegetables is not so much to be found in the amount of nutriment they contain, as in the salts and acids which we find in considerable quantities.

in them, and as the body is continually getting rid of chlorides, tartrates, and oxalates of sodium, potassium, &c., we must have some source from which to renew them.

It is to the vegetable kingdom the true vegetarian goes for his food, and he is bold enough to assert that he can find every essential element in it to supply his wants. I am not speaking now of the pseudo-vegetarian, who poaches on the richest foods of the animal kingdom, viz., milk and eggs (for it requires but a most superficial knowledge of dietetics to see he is no vegetarian at all, and has no right to call himself one), but of the true vegetarians who would not think of touching anything from the animal kingdom. I have tried very hard to believe in the theories launched forth, but I have always been confronted by scientific truths which cannot be got over. I don't say that it is not possible for a single man or woman even in our changeable climate to subsist on a vegetarian diet, but when you place the whole community on such diet it is quite another matter. I don't believe the working

classes could do the required amount of physical work on it. Undoubtedly the vegetarians, like the homœopaths, have done a great deal of good, for they have stirred up scientific men and made them put their theories and practices in order, and the result is we have now a far better and more useful quality of both, besides much better literary works on the subjects. As for the cooking of vegetables, we must give nearly the whole of the credit to our vegetarian friends. I was once asked to meet a well-known homœopath in consultation, but I declined in the most courteous way possible, for I said if I could do so conscientiously I should be a homœopath myself and by a like parity of reasoning,—if I believed the vegetable world gave us the best and most suitable food I should become a vegetarian.

I have fully described the potato when dealing with farinaceous food, but I may shortly refer to it again, and say that the amount of phosphates contained in it, and also in the tomato is very great. This makes it a brain food of a high value, and for this

reason alone they should be constantly on our tables. The tomato can be eaten raw, boiled, or fried, and served with hot or cold* meat; it also makes a capital addition to a salad. It is very pleasing to think that this nutritious half fruit, half vegetable is now being imported into England in large quantities at a very cheap price, so that in the future it will not be confined to the table of the well-to-do.

It is discouraging to think of the little use vegetables are put to in this country. I often prescribe a vegetable diet for certain forms of indigestion, gout, and rheumatism, but invariably get a letter from the patient saying the cook, or whoever acts in that capacity, cannot cook vegetables, and therefore my instructions cannot be followed. I can quite believe it when I remember what "*a watery mess*" vegetables are so frequently served up as, even in good families in England. How very seldom do we find vegetables made a separate course or served as a lunch or light supper, the custom being to serve them as an adjunct to meat, and

here we fully realise how difficult it is to change English customs. I, for my own part, often visit a Vegetarian Restaurant at lunch time, and enjoy some of the deliciously made dishes, and I find that I can do my work with ease and comfort without any signs of drowsiness or discomfort, and after the work is finished and a few miles walk I am ready for a good dinner.

It would be quite out of place for me to describe the cooking of vegetables, for the forms are so varied and intricate, but the art can be soon mastered with application and patience. Mrs. A. B. Marshall's larger work on cookery contains excellent articles on the subject, and although theory is useful in its way, it can never take the place of practical experience, and this remark particularly applies to the culinary art, therefore I should advise any reader who is interested in the subject to attend Mrs. Marshall's classes, where demonstrations are devoted to this special subject.

My meaning will perhaps be better understood when I mention what can be done with

the cauliflower. Boiled carefully until just done, then smeared with butter, placed before a clear fire, and a little grated cheese, pepper and salt added, and served with rich gravy, it is a dish not to be despised. I once enjoyed a capital dish which consisted of haricot beans (prepared as I have described in a former article), some cauliflowers with cheese, and some fresh young French beans; the taste of each seemed to blend well together and satisfy the palate. Cauliflower boiled in milk is another dainty dish and can be improved upon by additions, suggestions for which the reader can find in any standard cookery book.

Many people consider vegetables indigestible, and no doubt, as usually served, they are, but if fresh, young, and carefully cooked, the reverse is the case. Vegetables form such a numerous class that some are much more digestible than others. I may mention asparagus, cauliflower, vegetable marrow, French beans (young), peas (young), Brussels sprouts (young), as among the most digestible, and cucumber, celery (raw), and cabbages as

among the most indigestible. This is shown by the following table:—

	H.	M.	
✓ Vegetable marrow (boiled)	2	0	to digest
Bruliflower	2	0	"
Peas (young)	2	30	"
Beans	2	30	"
Parsnips	2	30	"
Carrots	3	15	"
Turnips	3	30	"
Cucumber (raw)	4	0	"
Cabbage (boiled)	4	30	"

If we carefully look at the nutritive value, we find water takes the chief place. Potatoes contain 75 per cent., turnips 90, and carrots 80 per cent., while in the remaining ash we find nitrogen, carbon, and salts. We should have to eat three and a half pounds of bread, or seven pounds of potatoes to give 300 grs. of nitrogen, but both these are very rich in carbon. I have already gone into the nutritious value of beans and peas in a previous article; the rest of the green vegetables are useful for the potash, soda, lime, sulphur (trioxide), phosphorous (pentoxide), contained in them. Vegetables should be young, fresh, and grown in a "*cleanly* soil," i.e., not one

in which little more than manure is used to force them. If these conditions are not insisted upon the flavour and taste will suffer. No housewife should use tinned vegetables when fresh vegetables can be obtained; the former should be left for those who make long voyages by land or sea, when they come as a boon and a blessing to them.

The last point I shall draw the reader's attention to in this article on green vegetables is the art of making salad, which forms such an appetising adjunct to various meats. All of us know the salad made of lettuce, radishes, and tomatoes, with olive oil, vinegar, salt, and pepper added, but how few know what excellent salads can be made from cold vegetables, which, in most cases, are consigned to the dust-hole, there to undergo putrid decay and become a collecting medium for all the germs which are seeking a suitable nidus to flourish in, and thus being a source of danger to the community at large.

Cold boiled beans, peas, cauliflower, carrots, and even potatoes, can be made into a salad which, if garnished with a dressing of a

delicate taste, may be served with satisfaction. Slices of beetroot, and raw tomatoes, or new onions will, if added, greatly heighten the flavour, and these may be changed on occasion for small pieces of pickled fish. Salads which are composed of boiled vegetables (except tomatoes) are far more digestible than those made of raw vegetables, and when the latter consists of cucumber, radishes, &c., the organs of digestion require to be in an extremely healthy state to consume them.

Fortunately for everyone the vegetable kingdom is so large, and the manifold green vegetables (their name is legion), changing with the season, comprise so many different classes, that we can make a choice to suit our particular fancy and digestion.

People often envy those who live in the country on account of the latter possessing a kitchen garden, where they can grow all manner of green stuff and place it on the table within a few hours after it has been cut; but why, I should like to know, should not the dwellers in towns have practically the same advantages in the way of a "green-

grocer" instead of a garden. This subject seems in the same position as the fish supply, for it is a known fact—that frequently when there is a scarcity of green food in London, tons of it are being thrown away within thirty miles (or a forty minutes' run by train); this happens almost yearly in the "turnip-top season," a vegetable of a most useful and wholesome character.

Greengrocers' shops, although I may not be thanked for saying so, are in my opinion a great mistake. Fresh green vegetables should never be kept in a close, stuffy shop; they require a large, well ventilated place with plenty of air passing through—in fact, a market. If the greengrocers were to combine in different districts in London and put together the rent paid for their shops, they could ensure a colossal market, fitted with every requisite for keeping vegetables fresh, and still could keep their businesses separate. Those who have travelled on the Continent know what much better facilities exist for obtaining these important articles of diet. Compare, for instance, the Halles Centrales

or *Marché St. Honoré*, between which and our boasted *Covent Garden** there is no possible comparison. The *Halles Centrales* of Paris cover about five acres, have direct tram and railroad communication, and are supplied with every kind of vegetable, fruit, and flowers, which are in season.

The market is quite a spectacle, and tourists visit the buildings in thousands, and it is certainly one of the most interesting sights the city affords. Small provincial towns on the Continent have similar places on a smaller scale, and I need hardly say I am aware there are places of a somewhat similar nature in some of our own provincial towns. London being such a large place, to be of any use such a market should be placed in each district. This, if the market were connected with the great railway companies, would give the poor cultivators of the soil a much better field for disposing of their produce, and obtaining a proper price for it; and

* Since this article was written a very handsome vegetable, fruit and flower market has been opened in *Farringdon Street*.

the people who have to live within the limits of *Oockayne*, the "toilers and moilers," would be thankful to them for growing the food which so greatly sustains their lives.

I have known vegetables, eggs, and butter in the summer to be so plentiful in the country that small farmers could not get rid of them, when the price in London has been extremely high for these articles, and I have no doubt the reader who lives in the country can bear me out in these remarks. The supply and demand in food is a very important question, but I am afraid, as there are so many interests at stake, that it will be a long time before it is finally and satisfactorily solved.

I think I have said sufficient on the subject of green vegetables for the reader to appreciate the importance I wish to attach to them as one of the items upon our daily diet card, the care which should be bestowed upon them in cooking, the necessity for them to be grown properly and gathered fresh, and, lastly, the blessing it would be for all if the supply was more abundant, cheaper, and get-at-able.

And, finally, one word of warning to the reader to carefully abstain from eating tainted vegetables or fruit, as these are most dangerous, and often bring about severe gastritis, colic, and diarrhoea.

7.—FRUIT.

We in this country hardly look upon fruit as a food; the poor buy it merely as an extraordinary luxury, and when it is very plentiful during the summer months, the middle-class use it mostly as a "sweet"—and on special occasions for dessert—and even the rich scarcely ever use it except as a dessert or for making "sweets." I have very seldom in England been offered a fruit breakfast or luncheon, even in houses which are surrounded by fruit trees. Abroad it is just the opposite, for breakfast or luncheon is hardly ever set out without an abundance of fruit.

I have no doubt our climate (or as our American cousins call it, "samples of weather") has much to do with the disregard we pay to fruit as a food, but there are also other causes for such neglect, viz., its price, its scarcity, and the fact we are

too solid feeders. Such causes as price, scarcity, and freshness should not, however, operate in the present day, for we are almost daily getting peaches, apricots, and apples from the Cape, Australia, New Zealand, and the United States; tomatoes galore from the Canary Islands, pine apples from Rio, &c., &c., and the cost of carriage is so small, and the yield so great in those parts that the price should be very moderate. I have, in the article on vegetables, dealt at some length with the inadequate provision made for the supply and sale of vegetables, and such remarks apply with equal force to the supply and sale of fruit.

Very few people, for the reasons I have before stated, know the pleasure of eating fruit as a food. Taking fruit after red and white meat, by way of dessert, is simply wasting it, and there is very little pleasure derived from eating it at such a time. To thoroughly enjoy it one must make it the principal part of the meal; for example, come down to breakfast in the summer with a healthy appetite, partake of a new laid egg

and a slice of toast, or a few slices of bread and butter and a cup of tea, then eat a large plateful of any fruit that may be in season or brought to this country from those countries which are having their turn of the sun's glad face shining on them; or, again, after partaking of a good hearty breakfast and having done a fair morning's exercise or work, sit down to lunch and partake of a little fish and finish the meal with fruit, say a few bananas, a pear, and some pineapple. I am certain that if such a fruit diet was eaten in moderation all the year round, and especially in hot weather, we should find that so far as the ladies are concerned, the "complexion expert"* would have her occupation gone, and as to the sterner sex, that they would not suffer from gout and liver troubles as they do. I often, when dining at some large banquet, wish that I might be allowed to take my share of the delicious

* There is no treatment so successful, scientific, and beneficial to the skin and complexion as the "dietetic," and it may be conscientiously recommended.

fruit on the table and save it for my morning or midday meal, for after swallowing half a dozen courses or more, by the time the fruit is reached I can only look upon it as a delusion and a snare, having lost all zest for it. I have no hesitation in asserting that the only way to get the good out of fruit, and to enjoy its piquant taste, is to eat it by itself. People with very small incomes may, perhaps shrug their shoulders and think that I am writing like most dietitians merely for people with plenty of money. I hope that if so they will speedily disabuse their minds of the thought, for I always try to write for the community at large and not the select few, and when making the above statements I have in my mind a number of fruits which are most inexpensive and can be afforded like any other daily food.

Those who pay particular attention to this form of diet become in time perfect connoisseurs in the taste of different fruits, and the nerves of taste being gradually stimulated up to a very fine point, they become as proficient in their way as the connoisseur of

wines, who is able to detect the delicious bouquet of the genuine high-class vintages of different wines.

The deciding which fruit is best to eat first, when eating two or three kinds, although it seems of little importance is in reality one of real significance; for instance, eating a breakfast of bananas, pears, and greengages, it would be best to eat them in the order given, for if you eat the greengages first you will spoil the taste of the pear, and the bananas will be rather insipid, but by eating them as I have suggested, the bananas will stimulate the nerves of taste to appreciate the fine flavour of the pear, which in like manner will stimulate those nerves to enjoy the rare flavour of the greengages. I could, if space permitted, name many more examples, which would fully illustrate my point.

The value of fruit as a food does not lie so much in the nutritive or flesh—or fat-forming constituents, as in the presence of

(a) Sugar.

(b) Acid, tartaric and citric.

- (c) Salines, potash, soda, calcium, phosphates, &c.
- (d) Vegetable jelly.
- (e) Scents and flavours.

nearly all of which are of the utmost service to the body, which uses up these materials daily, and requires them to be constantly renewed.

We all know to what use the grape is put in all countries in making wine, the apple in making cider, and the pear in making perry, besides the innumerable juices which are pressed out of various fruits to make drinks of. I shall have something to say concerning these in another article.

It is well to understand what we mean by "fruit," for the term includes so many different varieties, apparently having no connection with each other. The popular acceptance of the term "fruit" is the mature ovary of the flower, and the mature ovules forming the seed, but we have classed many of these among green vegetables, and we must in addition include in the term other parts of the flower, such as the pulpy disk or receptacle, as in the strawberry, the united

calyx and ovary, as in the apple and gooseberry, &c., or we may have the fruit the result of several united flowers as in the pineapple, or various seeds in the form of nuts such as the cocoanut, which is very rich in albumen and forms a staple food.

One of the most useful fruits we have in this country is the apple, which grows everywhere, and seems to flourish even where other trees decay and die; in fact, it seems indigenous to the soil, and is in season the whole year round. It consists of the calyx, calyx-tube, and stamen. We can make it useful as a drink, eat it raw, cook it in a variety of ways, and produce a wholesome and delicious jam or jelly from it. I have already mentioned the constituents of fruit; the apple contains all these in full proportions, and is especially rich in phosphates, as is shown by the following paragraph, which I extract from "*Indigestion clearly explained, treated, and dieted*":—"The amount of phosphates contained in apples, tomatoes, and potatoes (without phosphorus no life) causes them to be brain food of high value. At the

"present time man is undergoing a slow but certain incrimination upon the altar of cupidity or ambition; this nervous exhaustion causes dyspepsia, an inert liver, and other complaints, and the only way to prevent the incrimination is to supply phosphorus as fast as it is burnt by means of fruits and vegetables."

The various kinds of apples are so numerous, and they are called by so many names, that space will not permit me to describe them, but we can divide them broadly into two classes, viz., eating and cooking apples. The former should be full of fruit-sugar, vegetable-jelly, and acids, and when properly chewed are easy of digestion, and can be eaten at any time of the day, although it is better to confine them to breakfast and lunch; the latter when cooked are used in every possible way as "sweets," and when combined with custard form the most wholesome "sweet" we can place upon the table.

I have already referred to the amount of phosphorus in the form of phosphates the apple contains, which has been abundantly

proved by a special analysis made by the German school of scientific chemists. Apples contain it in larger proportions than in any other fruit or vegetables, so on this account they are very important to those who lead a sedentary studious life; this, together with the acids and other salts they are made up of increases the action of the liver, and helps to eliminate effete matters, which, if retained in the system, produces inaction of the brain and of the whole system, causing jaundice, sleeplessness, &c. I have noticed this to be particularly the case with old people.

Apples and other fruit have the additional advantage in the summer of lowering the temperature of the body, decreasing the process of oxidation, and thereby preventing the waste of the system, activity is increased, fatigue and thirst diminished. The Greeks lived nearly entirely on the fruits of the earth, and seemed to enjoy perfect health; hence the saying, "*Mens sana in corpore sano*"—A sound mind in a sound body.

The American apple, which is a very good kind for cooking purposes, has been attacked

by the *Horticultural Times* on account of the American fruit growers using arsenic and other poisons as insecticides. I am of the opinion that too much has been made of this, and that the infinitesimal amount of arsenic that can get into the apple is of small moment; I, however, think that poisonous insecticides should not be used, and their use should call for the closest attention and the strictest control, where it is not absolutely prohibited under severe penalties. This opinion, it may interest my readers to know, is fully endorsed by the *British Medical Journal*.

What I have said about the apple may be taken as a general description of all fruit when used as a food, and especially of the following, viz., pears, pineapples, grapes, cherries, gooseberries, apricots, oranges, peaches, currants, plums, nectarines, bananas, melons, &c., &c. All are rich in acids, vegetable jelly, and saline matter, and produce a cooling and purifying effect on the blood, regulate the bowels, and refresh the whole system.

I have included nuts among the fruit

foods, and have already referred to the cocoanut. This is a very valuable food, and forms the staple food in all countries where the cocoanut tree grows. When young and full of milk it is a most delicious food, the flesh-forming constituents being the large supply of vegetable albumen it contains. Brazil nuts are also very nutritious. The great drawback to eating nuts as food, is that when they arrive in this country they are dry, and require perfect teeth to chew them into small particles, and a strong digestion afterwards to consume them, otherwise they merely act as irritants to the intestinal tract. Chestnuts are very wholesome when baked or boiled, and can be used in the place of a vegetable.

Nuts have been prescribed by physicians in cases of excessive hunger, particularly in the case of diabetes, and doubtless they often do good; they are also serviceable when there is a deficient secretion of saliva, for the act of chewing stimulates the glands, and sometimes they do good in constipation, when the stomach is healthy.

I need hardly say, in bringing this article to a conclusion, that although tinned and bottled fruits are excellent substitutes for fresh fruit, they should never take its place when it is obtainable, and should generally be restricted to cooking purposes.

8.—DRINKS—NON-ALCOHOLIC.

We can no more do without liquid than we can solid nourishment, for the body is constantly requiring fluids. This can be easily understood when we bear in mind the great fact that our mortal body is mainly composed of water, which chiefly constitutes its weight. As plainly illustrating this, I would draw my reader's attention to the process of cremation, by which, after the body has been placed in the cremating chamber, and all the water driven out, the solid matter remaining behind is so small in quantity that one person can easily carry it away, whereas many hands were requisite to take the body, of which it is the sole residue, to the cremating chamber.

The great source of all drinks is water; in fact, without it the whole of the animal and vegetable creation would cease to exist. Water forms the chief part of those secretions which play such an important part in digestion, viz.,

the saliva, gastric juice, and bile, besides being the chief factor in removing impurities from the body. It also forms the greater part of blood, and is therefore a most important constituent in the human economy. There is no question in our social economy more urgent and important than the water supply of London, which at the present time is most unsatisfactory.

“At present it is horrible to witness the number of house-boats, rowing boats, and barges upon, and the refuse which gets cast into, the river whence London gets its supply. True, it is filtered, but can any filter separate sewage particles? Either no water for drinking purposes should be taken out of the Thames, or else a strong law should be passed that imprisonment would be sure to follow anyone polluting it.” (*Indigestion clearly Explained, Dieted, and Treated.*)

To prevent the many and fearful risks we run in drinking water, it should be first-boiled and afterwards filtered; by boiling¹ we kill all the living germs it contains, and by filtering

we get rid of slime and the various mineral particles which it may contain. Water should not be *stored* in the filter very long, in fact, it should be freshly filtered before drinking. The filter should be made so that it can be easily cleaned. I have seen some filters so full of dirt that to filter water through them would only make it more polluted. The silicated carbon filter is the best I have tried, and can be easily cleansed, the filtering medium can be taken out frequently and boiled, and there is no substance like sponge liable to become decomposed. I believe all filters made by this company can be cleansed and inspected by simply removing the silicated carbon block, which is self-aerating—a most important point in their favour. The amount of water required by a healthy adult is about three pints a day, but in certain diseases, such as gout, rheumatism, obesity, and some forms of dyspepsia, large quantities of hot water are prescribed, to, as it were, wash out the organs, and so carry the injurious materials out of the system. It is very harmful to drink very cold or very hot water, for the

former stops digestion and the latter injures the delicate mucous membrane of the stomach.

People are dreadfully careless in the storage of water. I have known cisterns in the houses of people, who, one would hardly think, would offend in so necessary a matter, allowed to go for years without being cleaned out or touched in any way. Again, people very rarely, if ever, trouble to see that the cover of the cistern is always tightly fitting. I consider, to keep a cistern sweet and wholesome it should be carefully cleaned, and scalded out at least three times a year; and it would be well in the case of property let to several tenants, to compel the landlord to see that this was regularly done. The water companies might with advantage to themselves, and at a very small annual cost, organise a proper staff of men with the necessary implements to do this work of cleansing and scouring. It is best not to store water at all, as I have already said, and most of the newly-built houses have no cisterns, but a constant supply from the main, and the

water can be filtered by a main supply filter, made of silicated carbon, and easily adjusted to a cistern or main service pipe. I lately saw one in working order at a large hotel, and was very satisfied with the purity of the water as it rapidly passed through it. Doubtless many a doctor's bill would be saved by having such a filter, besides the very pleasant thought of drinking pure water and knowing it is also used for cooking and washing-up purposes.

Always bearing in mind that water is the basis of all drinks, we can, for all practical purposes, divide non-alcoholic drinks :

- (a) Water, aerated, natural.
- (b) Water, aerated, artificial.
- (c) Water, mineral, natural.
- (d) Fruit juices for adding to water.
- (e) Manufactured non-alcoholic drinks.
- (f) Tea, coffee, and cocoa, &c.

Natural aerated water is, of course, quite pure, and contains a little soda and potash charged with gas. In this country we have some natural springs, the best known being the Malvern springs. Throughout Europe these natural springs are very numerous, and

the water is largely imported into this country, particularly from Germany and France, and is free from organic impurities. These waters are frequently boasted of as possessing medical properties for the cure of certain diseases, and many of their vendors overstep the mark, for if they possess all the virtues claimed for them they are really drugs, and should not be described as "table water," by which term we understand to be meant a water that may be drunk whenever we are at meals, and not a water having the properties of a drug, and which should only be taken as a corrective.

When we come to artificial aerated water, the British manufactured article is by far the best; and I have never drunk more carefully manufactured mineral waters than those made by Messrs. W. A. Ross and Sons, Ltd., of Belfast, who manufacture their mineral waters from a very carefully constructed spring well 226 feet deep, the water of which is absolutely pure. I have no doubt that besides the firm named, there are other manufacturers who exercise the same care and use only pure water. I am always sus-

picious of the *siphon*, for who knows what may be put into it? Abroad it may even contain (with the addition of gas) the very water which one is carefully trying to avoid. As a pure distilled aërated water, I may mention "*Salutaris Water*," which possesses the further advantage of being very moderate in price. The best use to which these artificial waters are put, is when they are used for the purpose of mixing with spirits, wines, or fruit juices.

Such of them as contain saline matter are frequently of great service in cases of gout, rheumatism, and indigestion. I would however warn people against continually drinking a large amount of aërated water, for it has a tendency to dilate the stomach and intestinal tract, and if taken with a large amount of food delays digestion, and may cause irregular action of the heart by *blowing out* the stomach. It should therefore be taken in moderation, in quantities of, and not more than, eight ounces at a time. For general drinking, water non-aërated and boiled, and filtered is the best.

Saline mineral waters are mostly procured from Germany and Austria, and nearly all of them have purging or tonic properties, the former being due to sulphate of magnesia and soda, and the latter to iron and arsenic; but as these waters are more of the nature of drugs than drinks, they are somewhat extraneous to this article.

Fruit juices (particularly lemon juice) can be added to still or aerated water, and in hot weather are grateful, refreshing and harmless beverages, but they should rather be taken as a drink between meals than with meals, for their flavour often disguises the taste of the food.

The number of manufactured non-alcoholic drinks is legion, and a few years ago people began to think the Elysium of such drinks had been reached, and the poor literary student who, by too lavishly burning the midnight oil, had considerably weakened his constitution, thought that he only had to take a draught of "Zoedone" to thoroughly feed and repair his exhausted brain. People appeared to have gone mad on "dones."

which, like mushrooms, sprung up daily. I remember tasting so many at an exhibition attached to a Medical Congress, that I am sure that if they had contained all the phosphorus and iron which their makers claimed they did I should have been a most dangerous combustible body. The "dones" have now almost entirely disappeared, and nothing has taken their place. I think there is a fortune for anyone who makes a cheap, wholesome, palatable, non-alcoholic drink; it would certainly come as a boon and a blessing to the community at large.

The only two manufactured non-alcoholic drinks which have kept their places are lemonade and ginger-beer. These, if made with care—the former not too sweet and from lemon juice, and the latter from real white ginger, and served cold—are wholesome and most acceptable drinks, particularly during the summer months. A very excellent ginger-ale is manufactured by Messrs. W. A. Ross and Sons, called Ross's Royal "Belfast" Ginger-Ale. I prefer the brand called "pale and dry;" it is a bright, briskly effervescent,

exhilarating, non-alcoholic drink, with just sufficient taste of ginger to give it a piquant flavour; I can likewise recommend the same makers' lime juice cordial. Last, but by no means least, on the list, are tea, coffee, and cocoa; in fact we may say they are the most important, for they are used as drinks by nearly every nation, and possess a useful ingredient, which acts as a grateful stimulant to tired and fatigued energy.

TEA, I consider, a very palatable and harmless drink, and a most useful restorative, when a person is fatigued. This is due to a substance called *theine* which it contains. There are very few people who cannot take tea with benefit (when taken in moderation) to the digestive system. Of course the abuse of tea (like the abuse of any other food or drink) brings on many diseases, more especially those of a nervous order, also flatulency, palpitation of the heart, constipation, &c. These latter complaints are caused by its being improperly made, and *tannin* being consumed with the infusion.

Tons upon tons of the tea which is im-

ported into this country are absolutely thrown away, and the virtue destroyed by housewives not attending to the making of it. Why should people, when entertaining you at afternoon tea, give you a cup of black, bitter stuff, which, if you drink, will most surely make you feel ill; or again, why should the pleasure of the breakfast-table be entirely spoilt by the presence of this black liquid? People will persist in keeping the hot water on the leaves, and adding to it, instead of pouring on the leaves boiling water sufficient for the table, and after it has stood for between three and five minutes (according to whether China or Indian tea is used) pouring the infusion into another hot teapot, leaving the leaves in the first teapot. A second lot of water should never be added to the leaves; they are finished with, and only contain the harmful *tannin*, and are of use only when the carpet requires sweeping. The method is so simple that it is unintelligible to me why tea cannot always be made properly, and thus, instead of causing it to produce injurious effects on the drinkers, make

it a drink which would bring comfort and joy to the tired and wearied. The water should be *soft* (if *hard* a little carbonate of soda thrown in will remedy it) and allowed to boil, and, as I have already stated, the quantity of water required should be poured on *at one time*. The great drawback to tea is its constant adulteration with all kinds of things, and the frequent substitution of leaves, such as sloe, hawthorn, or beech leaves in the place of the pure leaves. This substitution can, however, be easily detected. "The pure tea-leaf when unfolded has its whole length like the edge of a saw (serrated). The veins run out from the tendrils. The leaves are odourless when freshly gathered, the taste and aroma being developed during drying. The colour in tea is often produced by the use of Prussian blue, indigo, and burnt gypsum." (*Indigestion Clearly Explained, Treated, and Dieted.*)

COFFEE.—The remarks just previously made by me as to the making of tea apply with equal force to coffee, for the greater proportion used in this country is literally wasted through

being improperly made. I know no method better than to take four tablespoonfuls of freshly ground coffee, place it in a clean muslin bag and throw it into a pint of hot water just upon the boiling point, and then let it boil for a minute or so.* Coffee is a pleasant beverage for people with whom it agrees, but there are a great number of people who cannot drink it without its causing palpitation of the heart, indigestion, and biliousness, and these should carefully avoid it. It is a stimulant, and increases the action of the pulse, and relieves the sensation of hunger and fatigue, and cures headache in those with whom it agrees. The beneficial ingredient in it is *caffeine*. Coffee is a much older beverage than tea. Dr. Pavy says it was used in Abyssinia as far back as A.D. 875.

COCOA.—I will now conclude this article on non-alcoholic drinks by dealing shortly with cocoa, which is a drink and food combined. It is extremely nourishing, but unfortun-

* We should make an infusion of tea, but a decoction of coffee.

ately agrees with very few people, the oil it contains being too rich for weak stomachs. When the stomach is able to assimilate this oil it is a food of very great value, particularly for the growing child and people who are suffering from debility, either the result of some fever or due to consumption. A cup of hot cocoa taken before going for a long walk or retiring to rest is of very great benefit and sustenance. Cocoa is also the subject of adulteration, and we find it mixed with starch, sugar and farinaceous substances which are very often the causes of heat, acidity, &c. To insure its purity, I should advise the reader to buy the *nibs* and grind them when required.

Some of the manufactured article is very carefully prepared only from selected nibs, and can be used with perfect confidence as to its purity.

9.—DRINKS—ALCOHOLIC.

The subject of alcoholic drink is certainly not the most pleasant one to enter upon, for of late years it has become a matter of considerable controversy, and the orthodox teetotaler seems just as rabid against a moderate drinker as a Radical is against a Tory. I will not debate the subject here, but will merely say that from a very extensive biblical and moral research I have come to the conclusion that alcohol was given for our use but not abuse, and from a practical physician's experience, acquired in all parts of the world, I believe in it as a medicine, and a valuable drink for many, although there are a large number of both sexes habitually partaking of alcoholic drinks, who would enjoy better health, both bodily and mental, and in all probability live longer, were they entirely to abstain. Any of my readers who may wish to know my fuller

opinion on this subject are referred to *Indigestion, clearly explained, treated, and dieted, with special remarks on Gout, Constipation and Obesity*, where my views are more fully set out.

We find that in cold countries, where hydro-carbons are required to keep up the heat of the body, spirits and beer are consumed in large quantities, and that where the temperature is higher wine takes the place of spirits and beer; one reason for this no doubt is, that the vine grows and flourishes so well in hot climates, and in consequence, wine is cheap. The Englishman, however, carries his spirits and beer like his red meat wherever he goes, totally disregarding the different surrounding circumstances. There cannot be the slightest doubt that people can take spirits and beer, and generally without any apparent harmful effects, better in a cold than in a hot climate; for if these drinks are taken to excess in the latter climate the poisonous effects thereof are very soon shown in the liver and stomach.

I think our friends, the teetotalers, would do more good if, instead of going about declaring that alcohol is answerable for all the crime and disease of the present day, they devoted their attention to the subject of *pure* spirits, beer, and wine; for it is the belief of a large majority of people that harm is not so much caused by indulgence in these beverages as by the adulteration of them, and before embracing total abstinence principles, I, for one, should like to see what effect the use of *pure* aged spirits, unadulterated beer and wine would have on the health of the community, after a few years' trial. The enthusiasts of the teetotal^{ism} school should surely know that it is impossible to change the customs and habits of a country at once, and that, too, by merely abusing a thing the people of that country most prefer, and they would, in my opinion, much more easily attain the realisation of their desire for a temperate England, did they first induce the working man to give up spirits and take instead beer, which has very little alcohol in it, and the rich to drink only light wines;

then, perhaps, if the people felt so very much better, by reason of their taking less alcohol, they might be induced to give it up altogether.

We may, for convenience, classify alcoholic drinks as below :—

Spirits	Wine
Beer	Cider

and the following will show what a great difference there is in the amount of alcohol contained in these fermented drinks respectively :—

100 parts of				Contains per cent. of Alcohol.
Cider	...	...	...	5.0
Stout (Dublin)	...	...	...	6.80
Ale (Burton)	...	...	...	8.88
Claret	...	...	...	9.10
Port	...	...	...	22.96
Gin	...	...	...	36.
Whiskey, Brandy, and Rum about				52.

Spirits* being so strongly fortified with alcohol should not be taken as a daily beverage, except when ordered medicinally, and should be kept for occasions when the body is exhausted by fatigue and worry,

when they should be well diluted with water of some kind.

Beer or cider, on the other hand, may be used daily as a drink, for the amount of alcohol contained is very small; the other constituents being sugar, gum, and bitter extractive. Beer seems to agree with people who take a large amount of physical exercise, or those whose living is obtained by hard manual labour. I have known many cases where it actually does good, and it is a valuable carbonaceous food. It rarely agrees with those who live in towns, and lead a very sedentary life, or those who have any hereditary taint of gout or rheumatism, or who are inclined to corpulency. I have on many occasions found it useful in treating severe cases of indigestion in the case of young ladies who have always been water drinkers. The quantity taken should not exceed a pint a day, except in the case of a workman who might consume a quart without any injury. Cider also seems to suit some people very well, particularly in those districts where it is made. It contains very

little alcohol, and is rich in citric acid; but this latter substance often produces acidity with dwellers in towns. I have known farmers who have drunk little else for half a century look the picture of health, so it cannot have been very harmful to them, but on the contrary, apparently somewhat beneficial. I think, however, it is one of those drinks to which we can well apply the proverb, that "What is one man's drink is another man's poison."

The vine would appear to have been given to man from which to obtain his drink, and in all vine-growing countries where wine is not much dearer than water, the peasant makes it his daily beverage. I have been at some trouble to ascertain if any harm arises from the continual drinking of these light wines, and I have come to the conclusion that far from doing harm they do good, except, of course, when taken to excess. It is a great misfortune these wines have not found more favour in this country, but doubtless the reasons for this are that they are not imported pure, are too strongly fortified.

and lose their piquant aroma and flavour before they come to this country.

There is ample scope for the development of this trade even with our own colonies, for I have tasted some very good and wholesome wines in Australia and at the Cape, which are of the burgundy class and could be easily imported pure and unadulterated. A fine natural wine is made in California, and everyone knows the light wines of France, Germany, Austria, and Italy exported as burgundy, claret, hock, and moselle. Some of the red and white wines, whose alcoholic strength is very small, are sold at fairly moderate prices, but, considering the price charged for them by the cask in the districts where they are made, they should be much cheaper in price than they are, and thoroughly pure and unadulterated. I consider light wines (when they can be afforded) about the best drink for all who lead sedentary lives or are *brain workers*. They mix well with plain or aerated water, and give the tired system a fillip up and add pleasure to the taste, and if indulged in only to the ex-

tent of half-a-pint a day, cannot do any harm, unless the drinker is suffering from catarrh of the stomach, gout, or rheumatism, in which case water pure and simple is the best beverage until the disease is cured.

It is a wise plan not only to suit our drink to the particular country or place we may be living in, but also to the particular season of the year; for, as I have already mentioned, more beer and spirits can be taken in the winter than in the summer without doing any injury. If I were living an active life, with plenty of exercise and a healthy digestion, I should, from October to May in every year, take either a pint of Burton ale or stout a day and some whiskey occasionally, and in the other months of the year replace the beer with light wines. One might at the same time enjoy a glass or two of other wines when partaking of the hospitalities of friends, or when entertaining them. I do not believe that a slight excess is harmful when only occasionally indulged in.

The whole subject of alcoholic drinks is beset with difficulties, and it is impossible to

lay down a hard-and-fast rule for one and all to follow; we as medical men can only advise our patients individually. I would, however, impress upon the reader to carefully study the percentage of alcohol in different drinks, and would ask him, even if spirits are pure and aged, whether it can be compatible with sound health to take a large amount of them daily. I would also recommend all thoughtful people to think of the workmen and workwomen who cannot afford to buy good spirits, but consume large quantities of new undiluted spirit, improperly distilled, and of very raw and coarse quality, and mark the mischief to health such a habit must do, and how such a very delicate and sensitive structure as the mucous membrane of the stomach must be affected by such an irritant liquid. I again assert that the advocates of temperance would do much more good to their cause, by first endeavouring to prevent, by legislation, the sale of all alcoholic drinks under a certain age and quality.

In bringing this article to a conclusion I would point out that it is the sugar contained

in various alcoholic drinks, particularly in beer, which causes them to disagree with people suffering from various forms of dyspepsia, gout, rheumatism, and obesity, for with them sugar undergoes a constant fermentation causing acidity, and in an obese person an extra deposit of fat, which soon becomes a disease; therefore, in all the diseases enumerated, these drinks should be carefully abstained from. The alcoholic drinks which have little or no sugar in them are Scotch whiskey, and various light wines, and some lager-beers made specially without it.

We need hardly doubt that beer does lead to corpulency, if we only notice the brewer's drayman who does not appear to follow the example of the doctor, and seldom takes his own *poison*.

I think everyone should note the fact that the quantity of alcoholic drink consumed in the present day is very small compared with the quantity drank by our forefathers, and statistics do not show that they were more unhealthy than the people of the present

century. * In the reign of Henry VIII. a quart of wine or beer was the usual quantity taken at breakfast.

To go back still more remotely, one cannot fail to be struck by the enormous quantity of drink taken by the Romans, which, to our modern ideas, seems almost incredible. Novellus Torquatus, who received from Tiberius Claudius the title of Tricongius, or the three-gallon knight, could drink three gallons of wine at a draught; and it is stated that the emperor Maximin could drink six gallons of wine (Temetum) without feeling its effects. (*History of Ancient and Modern Wines.*)

It is quite evident that people must formerly have had more resisting power in their constitutions. It would appear that every nation makes some alcoholic drink or other, even those who have not, so far as we are aware, been in contact with civilisation, for Mungo Park, and other African travellers found the Negro race had a beer and a mead, and again, the Caffrees make an intoxicating beverage from millet, which they call *Pombie*.

In Persia, although the Mohammédan faith forbids the use of wine, and sherbert is the general beverage, yet several kinds of wine are made, the best of which being that of *Shiraz*, which is indulged in privately by the faithful. The Burmese and Siamese intoxicate themselves by sucking *soura*, the fermented juice of the cocoanut.

From these examples, which might be augmented by many more, it is, I think, pretty evident that there is a certain instinct among bipeds for alcohol in some form or other.

CONCLUSION.

FROM the opinions expressed in the foregoing articles, the reader, I think, will readily come to the conclusion that I am in no sense a *faddist* on any particular subject, but try to sift the *good* from the *bad* in all arguments that may be brought to bear on the subjects I have been discussing. In fact there is nothing I dislike so much as *faddism*, and I attach very little value to the opinions of the rabid teetotaler, the vehement^{er} vegetarian, or the bigoted homœopath. Instead of doing their respective causes any good, they in my humble opinion simply ruin them, and make sensible people hold aloof from all controversy on the subject, their arguments being in fact very much akin to chaff when separated from grain. I never argue with them myself, as I think there is nothing more disagreeable than to be subjected to a volley of abuse when one is merely trying to

enlighten oneself on a very debatable subject. Here is a recent specimen of a rabid teetotaler's utterance, and doubtless the man wishes the public to believe that he is a man of intelligence and a pioneer of the first order, against the abuse of alcoholic drink. This apostle of that excellent cause, the temperance cause, is reported to have said that "grape shot is better than grape juice." Such a public statement as this coming from a gentleman who I presume wishes to be thought a sane man and a great promoter of the war against drink, is ridiculous and extravagant in the extreme, and I do not think I am far wrong in my estimation of my fellow creatures' intelligence when I say that frenzied opinions have not the slightest effect upon them, and in fact prevent their joining a cause having such supporters, even although they might previously have had a wish to promote it. The above is but an ordinary specimen of the language employed, and the following is also a choice example of the intemperate advocate, and was used by a lady in airing her anti-tobacco views.

This ardent reformer, with most excellent taste informed the audience that she considered a man who drank and smoked was a "dirty beast." Comment on language such as this is unnecessary, but surely it would scarcely induce any who came within this vituperative dame's indictment, to renounce the tastes which so greatly excited her ire. Good causes for the benefit of the community at large should, to be of practical service, only have in their ranks *temperate advocates*.

I believe, myself, that much good has been done by those who have studied the subjects of drink, tobacco, and a pure vegetarian diet respectively, and who, as a result of such studies, have become teetotalers, non-smokers, or vegetarians, as the case may be, and have given the world their experience in a modest way. I am delighted to meet such people and have a little *pro* and *con* with them. They are the true champions of their cause, and are the only ones to carry conviction into the enemy's camp.

The whole subject of dietetics is very interesting, and too much time cannot be

devoted to the subject, for I believe it is to dietetics the physician will go in future for the cure of many diseases. I have very little doubt in my own mind, that if this subject was properly mastered, we should be able, by suitable dietary, to extend the average age by about twenty years, and in addition succeed in driving away the tendencies to many hereditary diseases which are so common with us at the present time. I sincerely hope these articles will popularise the subject and make diet (with its necessary essential—cooking) one of those subjects with which a practical acquaintance will be just as essential as the art of speaking or writing correctly.

That this should be so is only common sense, for what is of more primary importance to a nation, a family, or an individual than health and strength, and what can supply these but suitable nourishment. Let this be discontinued but a few days and the beauty of health will at once dwindle away. On many occasions I have made dietetics plain to my patients by carefully avoiding

the subject of their complaints, turning the conversation to horticulture, with the result that I have often been agreeably surprised at the extensive knowledge my patients have shown as to the growth and nourishment of plants. I have then suddenly said, "You are but a plant, the only difference being that it is rooted to one place and you are of a wandering nature and receive your food at intervals into a stomach. The regulator is *appetite*, which although referred to the stomach, originates in the brain. If you consider it so necessary that plants should have pure air, be well protected, constantly supplied with water, and grown on a soil well supplied with nourishment to suit each particular kind, how much more necessary is it in your own case, in health as well as in disease, that an equal amount of care and foresight should be bestowed. Just for a moment consider the state of a plant in less than a week if any of the above conditions were suspended. Why should we think we can disobey the laws of Nature with impunity?"

Before closing the subject I would again repeat that it is impossible to lay down as a hard and fast rule what particular food or drink it is best for mankind in general to take, for it seems a result of civilization both with man and beast, that their tastes for the various kinds of foods should differ. I don't think this is the case either with the aborigines or animals in a wild state, their dietary appears to be about the same, and what suits one in a particular class suits all. People who live in a civilized state seem to breed idiosyncrasies; which offer an obstinate resistance to the most careful rules of dietetics that may be put together by a practical dietitian. Intelligent people, however, can easily get over the difficulty by avoiding those things which they find constantly disagree with them, but those who are suffering from disease should always consult a physician who studies dietetics for him to draw up a regular diet card for them to be guided by.

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